Reply to Office Action of 07/26/2005   Appl. No.: 09/975,944
Amendment Dated: November 28, 2005   Attorney Docket No.: CSCO-012 /4912

Amendments to Specification

Please replace the paragraph beginning at page 4 line 9, with the following rewritten paragraph:

As a result, a high aggregate data transfer capability may be provided for the layer-3 route without necessarily having to provide a correspondingly high bandwidth on a single underlying physical path (of the layer-2 network). In one embodiment, layer-3 corresponds to internet protocol (IP) and layer-3 2 corresponds to ATM such that IP datagrams are transferred on the ATM virtual circuits provisioned to another edge router.

Please replace the paragraph beginning at page 5 line 1, with the following rewritten paragraph:

In an alternative implementation, a forwarding information base is implemented, which provides the most suited VPI/VCI when a lookup is performed based on the IP destination address. In an embodiment, the forwarding information base (FIB) is implemented in the form of a tree structure such that the tree needs to be traversed using a destination IP address as a key to determine the VPI/VCI.

Please replace the paragraph beginning at page 7 line 15, with the following rewritten paragraph:

Edge router 120 interfaces with user systems 110-A and 110-B using IP protocol (an example of a layer-3 protocol), and with switch 130-A and 130-B using ATM (layer-2 protocol). In accordance with the present invention, edge router 120 may use several layer-2 virtual circuits to communicate on a single IP (layer-3) route to edge router 160, and balance the traffic load across the virtual circuits. The manner in which such a benefit may be attained is described below with examples.

Please replace the paragraph beginning at page 8 line 12, with the following rewritten paragraph:

In step 230, a plurality of layer 3 (IP) datagrams are received in edge router 120, typically from end systems 110-A and 110-B. In step 250, edge router 120 determines the

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specific (subset of) layer-3 datagrams which need to be forwarded on the layer-3 route (noted in step 210). The determination is generally based on examination of the destination IP address contained in the header of each IP datagram, and may be implemented in a known way.

Please replace the paragraph beginning at page 9 line 9, with the following rewritten paragraph:

While the embodiments are described with reference to using only a single layer-3 router between edge routers 120 and 160, it should be understood that multiple parallel layer-3 routers may be present between the edge routers, with each layer-3 route being associated with a plurality of virtual circuits as described above. Such implementations are contemplated to be within the scope and spirit of the present invention. The description is continued with reference to an embodiment of edge router 120.

Please replace the paragraph beginning at page 15 line 1, with the following rewritten paragraph:

Datagram memory 470 stores (queues) cells/datagrams received and/or waiting to be forwarded (or otherwise processed) on different ports. Such memories can be employed in the embodiments of Figure 3A and 3B as well when buffering is required. ~~Secondary memory~~ Storage 430 may contain units such as hard drive 435 and removable storage drive 437. ~~Secondary storage~~ Storage 430 may store the software instructions and data, which enable edge router 120 to provide several features in accordance with the present invention.

Please replace the paragraph beginning at page 15 line 19, with the following rewritten paragraph:

Embodiments according to Figure 4 can be used to implement the approaches described above with reference to Figures 3A and 3B. Some considerations in software implementations are described below.

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Please replace the paragraph beginning at page 16 line 7, with the following rewritten paragraph:

Processing unit 410 may receive the datagram and place the ~~place the~~ datagram in datagram memory 470. Further processing of the datagram may need to be implemented in the form of processes (as opposed to interrupt handlers) under the control of a scheduler. As is well known, interrupt handlers generally receive a pre-emptive priority over scheduler controlled processes. Thus, for quick processing of datagrams, it is generally desirable that the datagrams be handled by interrupt handlers.

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